Control Number 10/712,949 (filed 11/13/2003)
Art Unit: 1764

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the Application:

Listing of the Claims

Pending Claims

1 - 20 (canceled)

21. (currently amended): A process for the production of refinery transportation fuel or blending components for refinery transportation fuel, which process comprises:

~~providing an organic feedstock consisting essentially of material boiling between about 75° C. and about 425° C. comprising a mixture of sulfur-containing, nitrogen-containing and other organic compounds derived from natural petroleum by processes that include~~

reacting a petroleum distillate consisting essentially of material boiling between about 50° C. and about 425° C. comprising a mixture of sulfur-containing, nitrogen-containing and other organic compounds derived from natural petroleum with a source of hydrogen at hydrogenation conditions in the presence of a hydrogenation catalyst to assist by hydrogenation removal of sulfur and/or nitrogen from ~~the petroleum~~ hydrotreated distillate;

partitioning by distillation the ~~organic feedstock~~ hydrotreated distillate to provide at least one low-boiling organic part consisting of a sulfur-lean, mono-aromatic-rich fraction collected below a temperature in the range from 260° C. to 300° C. ~~having a sulfur level of no more than 25 ppm~~ , and a high-boiling organic part consisting of a sulfur-rich, mono-aromatic-lean fraction;

contacting a gaseous source of dioxygen with at least a portion of the low-boiling organic part in a liquid reaction medium containing a particulate, heterogeneous oxygenation catalyst system which exhibits a capability to enhance the incorporation of oxygen into a mixture of liquid organic compounds and comprises one or more catalyst metal selected from the group consisting of chromium,

molybdenum, bismuth, manganese, iron, and platinum, while maintaining the reaction medium substantially free of halogen and/or halogen-containing compounds, to form a liquid mixture comprising hydrocarbons, oxygenated organic compounds, water of reaction, and acidic co-products , such that the oxygenation of the hydrocarbon portion of the liquid mixture is more than 1 percent by weight ;

separating from the mixture at least a first organic liquid of low density comprising hydrocarbons, oxygenated sulfur-containing, oxygenated nitrogen-containing and other oxygenated organic compounds and acidic co-products and at least portions of the catalyst metal, water of reaction and acidic co-products, and a second separated liquid which is an aqueous solution containing at least a portion of the oxidized sulfur-containing and/or nitrogen-containing organic compounds; and

recovering a low-boiling oxygenated product having a low content of nitrogen, acidic co-products and a sulfur content of no more than 15 ppm .

22. (previously presented): The process according to claim 21 wherein the hydrogenation catalyst comprises at least one active metal, selected from the group consisting of the *d*-transition elements in the Periodic Table, each incorporated onto an inert support in an amount of from about 0.1 percent to about 20 percent by weight of the total catalyst.

23. (previously presented): The process according to claim 21 which further comprises recovering at least a portion of the heterogeneous oxygenation catalyst system and injecting all or a portion of the recovered catalyst system into the liquid reaction medium.

24. (previously presented): The process according to claim 21 wherein the oxidizing agent comprises a gaseous source of dioxygen, the active catalyst metal of the oxygenation catalyst system is employed as metal oxide, mixed metal oxide, and/or basic salts of the metal or mixed metal oxide.

25 (previously presented): The process according to claim 21 wherein the heterogeneous oxygenation catalyst system comprises an oxygenation catalyst containing from about 1 percent to about 30 percent chromium as oxide and from about 0.1 percent to about 5 percent platinum on a support comprising gamma alumina.

26. (previously presented): The process according to claim 21 wherein the heterogeneous oxygenation catalyst system comprises chromium molybdate or bismuth molybdate and optionally magnesium.

27. (previously presented): The process according to claim 21 wherein the heterogeneous oxygenation catalyst system comprises gamma alumina and a catalyst represented by the formula $Na_2Cr_2O_7$ in an amount of from about 0.1 percent to about 1.5 percent of the total catalyst system.

28. (previously presented): The process according to claim 21 further comprising blending at least a portion of the low-boiling oxygenated product with at least a portion of the high-boiling product to obtain components that exhibit sulfur levels of less than about 15 ppm, for refinery blending of ultra-low sulfur transportation fuel.

29 – 30 (canceled)